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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,278	03/16/2001	Sumio Kawano	KNI-148-A	7912

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EXAMINER

MORAN, TIMOTHY J

ART UNIT PAPER NUMBER

2878

DATE MAILED: 05/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/810,278

Applicant(s)

KAWANO ET AL.

Examiner

Timothy J. Moran

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 5, the term "for dispersing near infrared light in a short wavelength range from light from a source of light or the sample" is unclear. Here the term will be understood to mean "for dispersing near infrared light in a short wavelength range from a source of light or the sample."

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamoto, U. S. Patent No. 5,324,945 in view of Maggard, U. S. Patent No. 5,145,785. Regarding claim 1, Iwamoto describes (fig. 1, col. 2, line 62-col. 3, line 22) a method for analyzing a sample using near infrared spectroscopy comprising the steps of applying near infrared light to the sample (from source 4), detecting diffusely transmitted light by an optical sensor (3) to measure an absorption spectrum (col. 6, lines 27-46), and modifying the measured spectrum using a calibration equation (col. 5, line 34- col.

6, line 3) which has been determined in advance (col. 4, lines 16-45) using the steps of applying light and measuring a spectrum for samples with known characteristics, thereby determining an object characteristic of the sample (the sugar content). Iwamoto does not teach the use of such a method for analyzing a liquid sample. However, the analysis of liquids is well known in the art of spectroscopy. For example, Maggard (col. 2, lines 35-46) teaches the analysis of liquids using near infrared spectroscopy. Therefore it would have been obvious to one of ordinary skill in the art to analyze liquids using the method of Iwamoto to determine physical properties of the liquid.

Regarding claim 2, Iwamoto teaches (col. 5, lines 34-35) the use of wavelengths in the range including (786 nm to 914 nm) which overlaps the region (700 nm to 1100 nm).

Regarding claim 3, Maggard teaches the analysis of oil (col. 2, lines 35-40) using near infrared spectroscopy. Therefore it would have been obvious to one of ordinary skill in the art to analyze oil using the modified method of Iwamoto to determine physical properties of oil.

Regarding claims 4 and 14, Iwamoto does not explicitly teach the use of test tubes as sample cells, but their use is well known in the art of analysis. Therefore it would have been obvious to one of ordinary skill in the art to use test tubes to act as sample cells. Iwamoto also does not teach the use of test tubes with the same specifications during measurements of the samples with known characteristics. However, since such control of experimental materials is well known in the art of chemical analysis, it would have been obvious to one of ordinary skill in the art to

provide for test tubes with the same characteristics with the modified apparatus of Iwamoto for the advantage of predictable results.

Regarding claim 5, Iwamoto describes an analytical apparatus (fig. 1) for analyzing a sample comprising a sample position (location of fruit (2)), a block provided with a housing portion for the sample position (1), a near infrared apparatus provided with a spectroscope (3) for producing near infrared light in the near infrared wavelength range and an optical sensor (3) for detecting the near infrared light, light conduction means (7) for conducting the produced near infrared light to the sample cell, and control means for outputting a measurement command to the apparatus and for modifying the measured spectrum using a calibration equation (col. 5, line 34- col. 6, line 3) which has been determined in advance (col. 4, lines 16-45), for thereby computing an object characteristic (the sugar content). Iwamoto does not teach the use of such an apparatus with a sample cell to analyze a liquid sample. However, as discussed above, such features would have been obvious to one of ordinary skill in the art. Iwamoto also does not teach the use of light conduction means for conducting at least one of diffusely reflected light or diffusely transmitted light from the sample to the optical sensor. However, the use of light conductors is well known in the art of spectroscopy. In fact, a light conductor is taught as being useful in the light source section of the Iwamoto for the benefit of allowing separation of the light source from the sample region. Therefore the use of a light conductor to conduct diffusely reflected or diffusely transmitted light in the modified apparatus of Iwamoto would have been obvious to one of ordinary skill in the art for the advantage of separation of the optical sensor from the sample region.

Regarding claim 7, Iwamoto teaches the use of a monochromatic or similar light source (col. 2, lines 22-25) and the use of a silicon detector (col. 2, lines 65-67).

Regarding claim 8, Iwamoto teaches that the light conduction means comprises an optical fiber (col. 3, lines 11-13), where the "bundle of glass fibers" is understood to comprise a single optical fiber, in addition to other optical fibers.

Regarding claim 9, Iwamoto teaches that the block (1) is provided with a temperature control means for stabilizing the sample temperature (col. 2, lines 65-67).

Regarding claim 10, Iwamoto does not teach the use of a test tube as the sample cell, but since such test tubes are well known in the art of liquid analysis, the use of such tubes would have been obvious to one of ordinary skill in the art for the purpose of containing the liquid sample.

Regarding claim 11, Iwamoto teaches the determination of the calibration equation in advance using samples with known characteristics (col. 4, lines 16-68).

Regarding claim 12, Iwamoto does not teach the use of test tubes with the same specifications during measurements of the samples with known characteristics. However, since such control of experimental materials is well known in the art of chemical analysis, it would have been obvious to one of ordinary skill in the art to provide for test tubes with the same characteristics with the modified apparatus of Iwamoto for the advantage of predictable results.

Regarding claim 13, Iwamoto teaches the use of a bundle of optical fibers as the light conducting means (col. 3, lines 11-13).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamoto and Maggard as applied to claim 5 above, and further in view of Anderson, U. S. Patent No. 5,502,560. Iwamoto does not teach the use of a white light source and a diode array. However, Anderson teaches the use of a white light source (203, col. 5, lines 9-11) and a diode array (209, col. 5, lines 14-18) in an infrared spectrometer (col. 8, lines 3-8). Therefore it would have been obvious to one of ordinary skill in the art to provide for a white light source and a diode array sensor in the modified device of Iwamoto to generate and detect radiation.

### **Conclusion**


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Moran whose telephone number is 703-305-0849. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 703-308-4881. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

T.M.

TM  
May 23, 2002

  
CONSTANTINE HANNAHER  
PRIMARY EXAMINER  
GROUP ART UNIT 2878